



SECRET

- 2 -

50X1-HUM

- (h) Maximum working pressure for which the boiler was cleared;
- (i) Estimate of strength of the drums of the boiler and of the superheater and economizer chambers;
- (j) Heating surface size of the boiler, superheater and economizer;
- (k) Arrangement and measurements of safety valves and other basic armatures;
- (l) Number, system and output of feeder instruments.

4. If the boiler was assembled by welding process, the following data must be submitted as well:

- (a) Results of tests with the molten metal with indication of the welding method used;
- (b) Results of tests made on welded joints, output of experimental plates, welded simultaneously with manufactured parts;
- (c) Name of welder, number and date of his work certificate;
- (d) Results of X-ray examination (Finding of plant laboratory with appraisal of X-ray examination of seams);
- (e) Results of metallographic analysis of seams and if this took place;
- (f) Appearance of heat treatment (normalisation or tempering);
- (g) Results of hydraulic tests at manufacturing plant.

5. The boiler to be registered may not be put into operation without having been previously examined by the inspector of the Register who must be notified by the enterprise to the effect that the boiler is ready to be inspected.

6. Every steam boiler in operation which is subject to the foregoing regulations must be subjected to a periodically established technical examination which is made by the Register.

7. If a transportable boiler, after being inspected, should be taken to another location, the date set for the next inspection of the boiler remains valid.

8. The technical examination of the steam boiler consists of:

- (a) Outside inspection;
- (b) Inside inspection;
- (c) Hydraulic test.

9. Recurrent examinations of steam boilers must normally be carried out at the following periods:

- (a) Outside inspection - not less than once a year;
- (b) Inside inspection - not less than once every three years;
- (c) Hydraulic test - not less than once every six years.

If the boiler was designed so as to preclude inside inspection, a hydraulic test may serve as a substitute for inside inspection.

10. An out-of-turn (extraordinary) hydraulic test of boilers is made by the Inspection of the Register in the following events:

- (a) If a boiler has been idle for the period of two or more years up to the time it was put into service;
- (b) If a boiler has been disassembled and shipped to another place;
- (c) If, during repair of the boiler, a heating pipe or other part of the boiler, with an outer diameter of over 103 mm had been taken out;
- (d) If more than 15% of the total amount of connections in the boiler have been replaced;
- (e) If more than 20% of the total amount of flues or more than 15% of the screen- or water-heating pipes have been replaced;
- (f) If a replacement was made even if it was only part of the plate or the riveting of same not less than 15 consecutively placed rivets or not less than 25% of the total number of rivets in one seam.
- (g) After any repair of a boiler involving welding on boiler parts subjected to working pressure if the welded part of the boiler could not be subjected to a hydraulic test independently from the boiler.

Results of the boiler inspection whether regular or out-of-turn inspection, are entered by the Inspector of the Register in the standard boiler book (passport). On this occasion he also enters the dates on which the subsequent inspections are to be made.

SECRET

SECRET

-3 -

50X1-HUM

12. Outside inspection of the boiler is made without stopping its operation and the boiler must be made available for this inspection at the first demand of the Registry inspector, whether the inspection is scheduled for that time or not.
13. The boiler, when subjected to inside inspection and hydraulic test, must be stopped from functioning, cooled off and carefully cleaned of scum, dirt, soot and ashes. Newly installed boilers must be presented to the Inspectorate of the Registry for inspection and examination without brickwork and insulation. Prior to inspection by the Registry inspector the boiler may not be lubricated or polished with any kind of material.
14. When the boiler is subjected to a hydraulic test the following rules must be observed:
  - (a) Boilers scheduled to operate under a steam pressure of not more than five atmospheres, are subjected in the test to an actual pressure of 1.5 times over and above the maximum pressure set for the boiler to operate under, but in any case not less than two atmospheres.
  - (b) Boilers whose operating pressure exceeds five atmospheres are subjected in the hydraulic test to a pressure amounting to 1.2 times over and above the maximum pressure they are intended to operate under. In any case the increase in pressure must be not less than three atmospheres. Where vessels are involved, the hydraulic test of Boilers is usually based on  $1\frac{1}{2}$  times equal to the working pressure no matter what the working pressure set for the boiler may be.
  - (c) The pressure to which the boiler is subjected during the test must be increased slowly and evenly and it must be checked by means of the adjusted control manometer.
  - (d) The boiler remains under testing pressure for a period of five minutes, after which time the testing pressure is gradually lowered to the level of the operating pressure, which is then maintained in the boiler as long as is required for carrying out an accurate inspection. If it should be necessary, testing pressure will be applied repeatedly.
  - (e) Along with the boiler, all its armatures are also subjected to hydraulic test. When this is done all safety valves must be jammed up, but the gauge-glasses must be overlapped.
  - (f) The pump for the hydraulic test must be supplied by the enterprise, but the control manometer is supplied by the Registry inspector.
15. The boiler is considered as having passed the hydraulic test if:
  - (a) No signs of a break are in evidence;
  - (b) No leaks are noticeable. In this connection, issue of water through seams in riveted joints which look like fine dust or fine droplets - so-called "tearlets" (slyezki), but also issue of water from faucets and other type of armature, is not considered a leak while the pressure required for the test is maintained at the necessary test level;
  - (c) No visible deformities remain at the end of the test.

If tearlets or perspiration are evident in the welded seams the boiler is considered as not having passed the test.
16. Outside examination of a boiler is made by the Registry inspector without notice to the enterprise regarding the time set for the examination.
17. The day the hydraulic test and inside inspection of a steam boiler is to be made is established by the enterprise with the approval of the Registry inspector and provision must be made to shut off the boiler not later than the time prescribed for it in the boiler book (passport).
18. The local Inspectorate of the Registry must be notified by the enterprise to the effect that the boiler is ready for inspection and this must be done not later than 10 days prior to the inspection date.
19. If the inspector fails to show up for inspection at the time agreed upon the enterprise is authorized to provide for inspection of the boiler, in accordance with standing rules, by its own technical staff, but it remains responsible for the consequences. A document is drawn up in this case, signed by the persons who carried out the test and examination, and the document reflects the results of the examination and reasons for putting the boiler into operation. A copy of this document is then immediately sent to the Inspectorate of the Registry. After this test the enterprise is authorized to put the boiler into operation.

SECRET

SECRET

-4-

20. A boiler put into operation under these circumstances is subject to examination by the Registry Inspector not later than eight months from the date it was set in motion as a result of the agreement with the enterprise. An extension of this term may be granted with special authority from the local Inspectorate of the Registry.
21. Every enterprise or vessel must be in possession of an individual log book (passport), which must comply with the standard form and which must be authenticated by the local Inspectorate of the Registry. The results of every boiler inspection must be entered in this book. When the boiler is surrendered to another organization the boiler log book (passport) must be surrendered along with the boiler to the new organization which then must notify the local inspectorate of the Registry to the effect that the boiler has been turned over to this organization.

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50X1-HUM